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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,690	03/29/2001	Satoshi Takano	109107	3148

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EXAMINER

LEE, GRANVILL D

ART UNIT PAPER NUMBER

2825

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/819,690

Applicant(s)

TAKANO, SATOSHI

Examiner

Granvill D Lee, Jr

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6&9-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Applicant's Argument***

After review of applicant's amendments and comments, the examiner finds such arguments unpersuasive. Applicant's comments as to Ishizawa et al. are well taken, however in further review of the prior art, the examiner has found that Shigeru et al. appear to read upon applicant's claimed invention. As these are a new ground for rejection necessitated by applicant's amended claimed invention, and they are to be considered a final rejections of the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6 and 9-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeru et al. (Japan. 06-104178).

In view of claims 1-3, 6 and 9-19 (esp. clms. 1-3, 6 & 9-11), Shigeru et al. teaches a semiconductor processing apparatus for wafer or substrate

processing comprises the steps of exchanging a substrate (Fig. 1 #52) between a preliminary chamber (Fig. 1 #7) and the outside chambers (#2-6); subjecting the substrate to a predetermined processing in a process chamber (#4); transferring the substrate through a transfer/transport chamber (Fig. 1 #1) provided between the preliminary chamber and the process chamber (Fig. 1 #2-6); and supplying and exhausting an inert gas continuously (Para. 0017) to and from at least the chamber in which the substrate is present among the chambers during at least the transfer of the substrate (Para. 0017).

In view of claim 2, Shigeru et al. continues processing as indicated by supplying and exhausting an inert gas to and from all chambers to maintain constant pressure during substrate transfer (Para. 0017).

In view of claim 3, and partially indicated in claim 1, Shigeru et al. further teaches vacuum pump mechanisms in use with the vacuum chambers (Abstr.)

In view of claims 12-13 & 15 Shigeru et al. contains five chambers in order to conduct treatments (Fig. 1 #2-6), as gas is continuously supplied and exhausted via vacuum pumps.

In view of claims 14 and 16, Shigeru et al. teaches that the vacuum system is independent in that some chambers can be disconnected if so chosen (Clm. 10).

In view of claim 17, Shigeru et al. shows that the main process chamber contains the vacuum pump, which supplies the inert gas (abstr.).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru et al. in view of Ishizawa et al. (US Pat. 6,328,864).

In view of claims 4 and 18-19, Shigeru et al. teaches a semiconductor processing apparatus for wafer or substrate processing comprises the steps of exchanging a substrate between a preliminary chamber and the outside chambers; subjecting the substrate to a predetermined processing in a process chamber. It is noted that the Shigeru et al. preliminary chamber (#7) contains at least some wafers, but fails to use or specifically say "cassettes" as the unit for holding wafers. Although it is notoriously known to use cassettes or wafer holding units, the examiner cites Ishizawa et al. to support the assertion, that element #108 is a cassette for feeding a plurality of discs into a processor. Therefore, it would be obvious to one of ordinary skill in the art to use wafer holding units as cassettes for the prime reason of processing a plurality of wafers in a given time.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru et al. in view of Park et al. (US Pat. 6,037,272).

In view of claim 5, Shigeru et al. teaches a semiconductor processing apparatus for wafer or substrate processing comprises the steps of exchanging a substrate between a preliminary chamber and the outside; subjecting the substrate to a predetermined processing in a process chamber; transferring the substrate through a transfer chamber. Although, Shigeru et al. processes wafers using sputtering, etching and other methods, Shigeru et al. fails to include a process for making hemispherical grain (HSG) layers on a wafer, which is a notoriously well known manufacturing step. In support of this assertion, Park describes a teaching where a reaction chamber is used to form a HSG layer on a wafer. Therefore, it would have been obvious to one of ordinary skill in the art to modify and/or clarify Shigeru et al. as HSG processes are well known in the art using the process reaction chamber technique Shigeru et al. describes. Furthermore, Park et al. includes teaching a method, where a reaction chamber can be used for making HSG thin film on a wafer (Col. 6 lines 55-61).

### ***Response to Applicant***

The newly used (IDS) prior art used and translated because of the new limitation and timing of the "continuous" inert gas flow, which is nearly always on, after the wafers are placed in the carry-in chambers, as cited. This would

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seem to read on a continuous inert gas flow just during the transfer steps, and final as a result.

### ***Final Action***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications for the examiner should be directed to Granvill Lee whose telephone number is (703) 306-5865. The examiner can be normally reached on Monday thru Thursday from 7:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are not successful, the examiner's supervisor, Matthew Smith can be reached on (703) 308-1323. The fax phone number for this group is (703) 308-7722.

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Any inquiry of a general nature relating to status or otherwise should be directed to the receptionist whose telephone number is 703-308-1782.

Examiner  
Granvill Lee  
Art Unit 2825

GI  
5/28/03

A handwritten signature in black ink, appearing to read 'M. Smith', written in a cursive style.

MATTHEW SMITH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800